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PENTAGONAL CUTTING EDGE INJECTION NEEDLE

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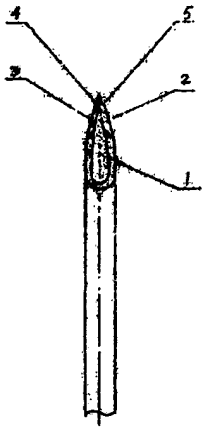
[There are no amendments to this patent.]

Abstract

The present design provides a type of pentagonal cutting edge injection needle. It is an injection needle manufactured by using the automatic blade grinding machine used for the current injection needle. The needle tip is a pentagonal cutting edge. The two cutting edges at the top of the injection needle tip are three-dimensionally symmetrical. The needle tip is sharper than that of the conventional triangular cutting edge injection needle. It can reduce the opposing resistance of the muscle during injection. The needle can penetrate more quickly to significantly reduce the pain caused to the patient.



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Claim

A type of injection needle comprised of a needle tube and a needle seat and characterized by the fact that the cutting edge at the tip of the injection needle has a pentagonal shape (Figure 1), and the two cutting edges at the top of the injection needle tip (Figure 1, (4), (5)) are three-dimensionally symmetrical.

Specification

Pentagonal cutting edge injection

The present design pertains to a type of pentagonal cutting edge injection needle in the medical equipment field.

The tip of the current injection needle used for injecting various types of liquid medicines has a planar triangular cutting edge. To manufacture such a cutting edge, first, a plane with an inclination angle of 12° is formed by means of cutting/grinding. Then, the needle tube is rolled at the same angle to chamfer the cutting angle on the left and right sides to form a planar triangular cutting edge. When the aforementioned injection needle is used to perform intramuscular and intradermal injection of a patient, it will cause relatively severe pain.

In order to overcome the disadvantage of the aforementioned injection needle, the purpose of the present design is to provide a pentagonal cutting edge injection needle that is sharper and can penetrate more easily to reduce the pain caused during injection.

The present design uses the blade grinding machine used for manufacturing injection needles. After the first inclination angle of an injection needle is formed by means of cutting/grinding, the needle tube is shifted through an electrically controlled reversing valve and a pneumatic element to automatically cut/grind the left and right sides of the second inclination angle. After that, the needle tube is shifted automatically again to cut/grind the left and right sides of the third inclination angle. As a result, a three-dimensionally symmetrical blade is formed at the tip by means of cutting/grinding to form the pentagonal cutting edge injection needle. Since the pentagonal cutting edge injection needle is sharper than the conventional triangular cutting edge injection needle, when the needle tip enters muscle or intradermal tissue during an injection, it can generate a delamination muscle separating effect to reduce the opposing resistance of the muscle. In this way, the penetration time can be cut shorter to significantly reduce the pain caused to the patient.

In the following, the present design will be explained in more detail with reference to the attached figures and application example.

Attached figure: A diagram illustrating the pentagonal cutting edge injection needle.

A blade grinding machine used for manufacturing conventional injection needles is adopted in the present application example, and the fixture is controlled through an electrically

controlled reversing valve and a pneumatic element to switch the cutter between two angles automatically. First, the inclination angle of the main angle-adjusting plate is adjusted to 11-17°. Then, the needle tube made of stainless steel is arranged and clamped. After blade grinding of the first inclination angle is completed (Figure1), the clamping boards are pushed to incline forward by 3-6° by means of the electrically controlled reversing valve and the pneumatic element. The needle tube is then displaced, and the left and right sides of the second inclination angle are ground automatically (Figures (2) and (3)). The needle tube is automatically displaced again by 1-3°, followed by blade grinding of the left and right sides of the third inclination angle (Figures (4) and (5)) to obtain a pentagonal cutting edge injection needle. The two cutting edges at the top of the injection needle tip (Figure 1, (4), (5)) are three-dimensionally symmetrical.